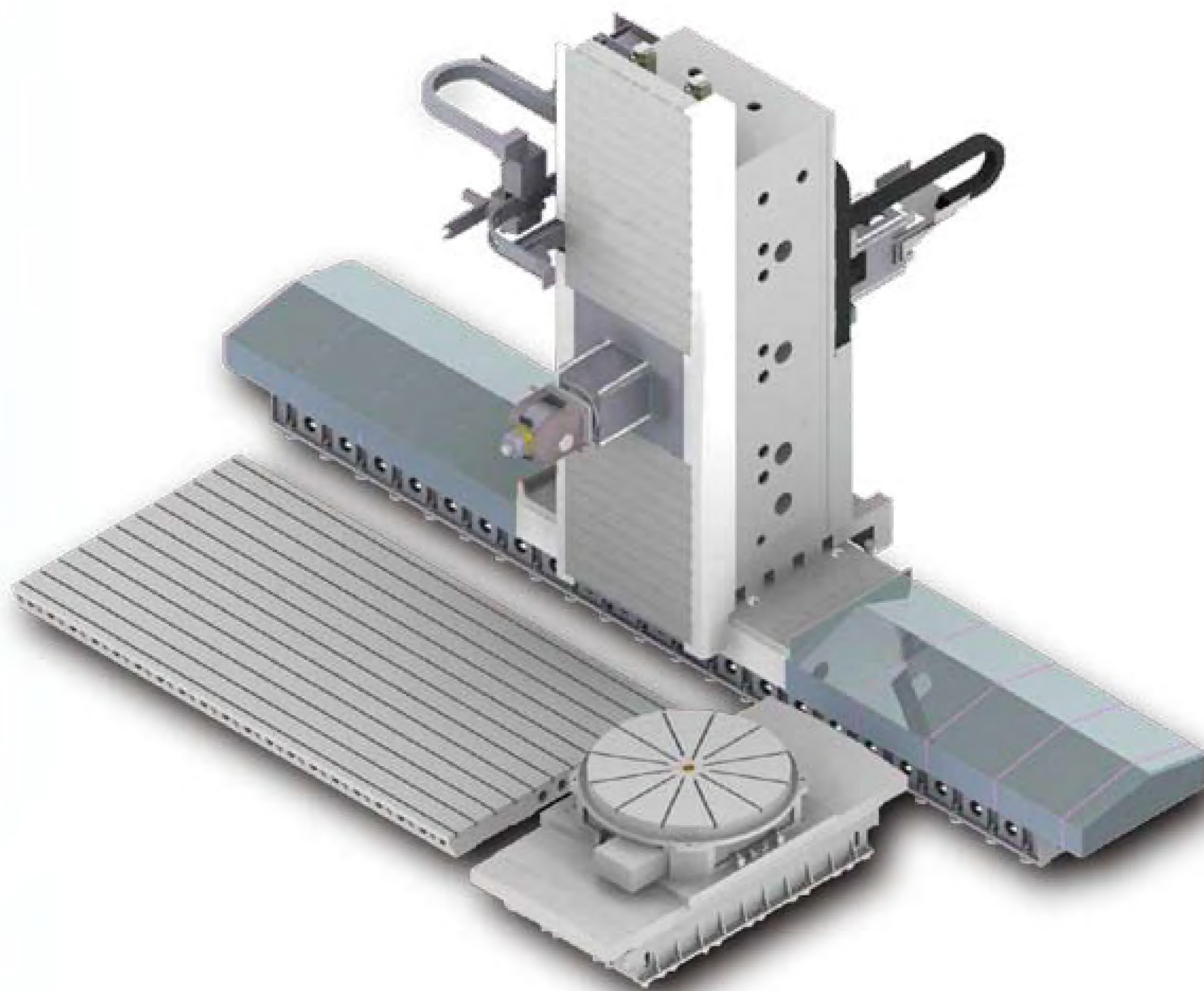


# Eumadon

*Always Step Ahead*



## **FBM Series**

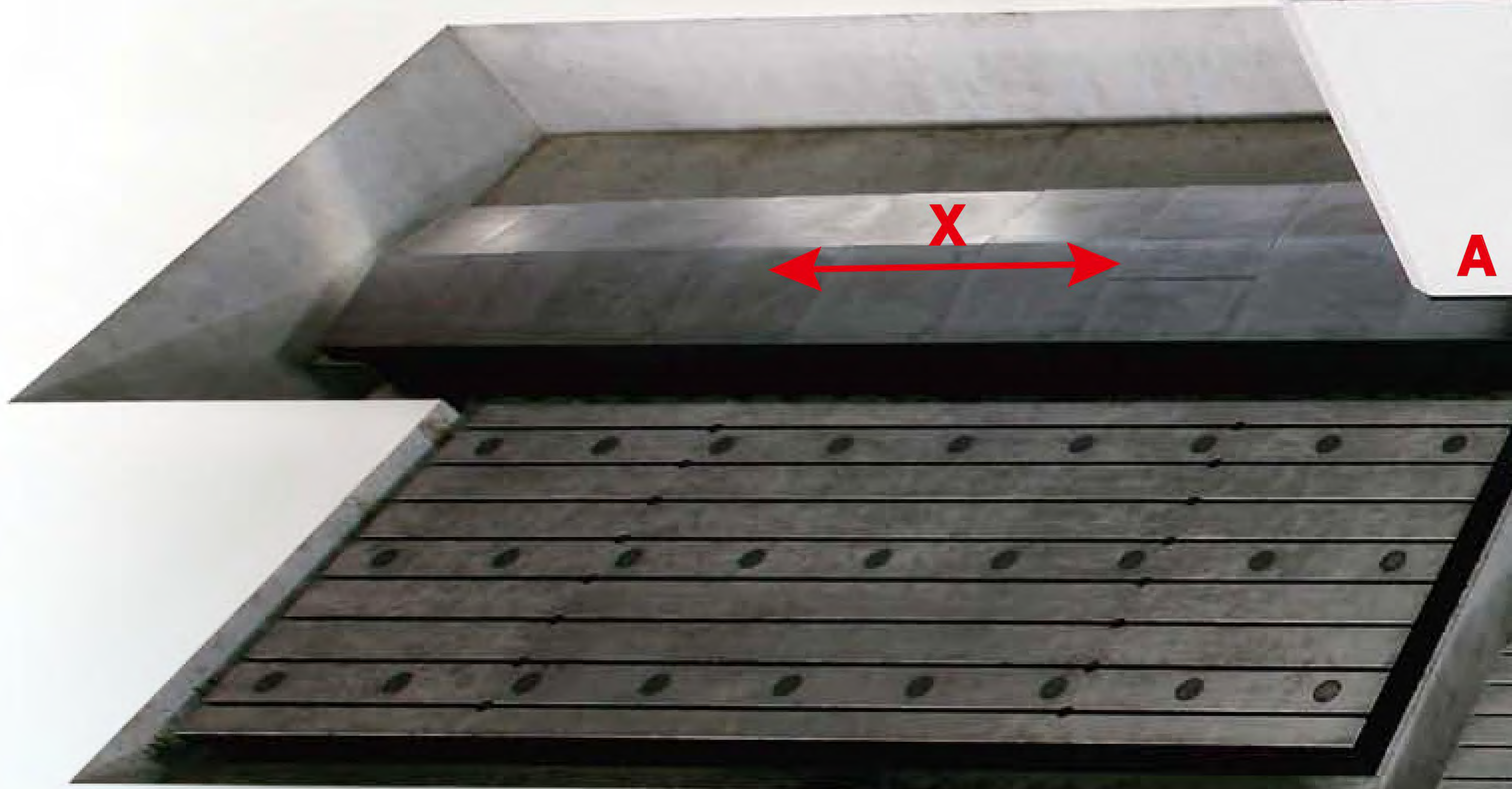
Box in box in box designed  
Floor type boring milling center

**A PROFESSIONAL CNC MACHINES MANUFACTURER**



# **FBM SERIES FLOOR TYPE HIGH PERFORMANCE, MULTI-PURPOSE BORING MILLING CENTERS**

- Machine shown in picture is  
10M(X) x 4M(Y) x 1.3M(Z) x  $\pm 180^\circ$ (A) x  $\pm 360^\circ$ (B) x  $\pm 360^\circ$ (C) x 3M (V)  
HSK-A100 / 12000RPM spindle, 60 ATC, 7M x 2.5M floor plate,  
 $\varnothing$ 2.5M rotary table with 30 tons load, lifting operator cabinet.



- High versatile due to wide range of machine configuration, besides standard  $\varnothing 160$ mm boring spindle such as various milling heads, floor plates, angle plates, rotary / rotary traveling / rotary traveling with tilting function tables, this is the most flexible machining center in the market, which is able to satisfy for the next decade various industries such as aerospace, energy ( wind power, gas, nuclear ), ship building, oil, rail way, mining and subcontractor machining sector etc. !





**Triple Boxes Theory –  
“Box in Box in Box”  
With Maximum  
Symmetric Concept**

**Range:**

- X – 4M ~ 20M, every 2M modular
- Y – 2M ~ 4M, every 0.5M modular
- Z – 1.2M
- A –  $\pm 180^\circ$
- B – up to 3M rotary table
- C –  $\pm 360^\circ$
- V – 1.5M ~ 3M, every 0.5M modular
- W – 0.7M or 1M



## ***4 Views of FBM-10040 machine :***



**1. 10M ( X ) x 4M ( Y ) x 1.3M ( Z ) travel, 60 ATC, automatic lifting operating cabinet**



**2. 7M x 2.5M x 350mm floor plate & 2.5M x 2.5M B axis CNC rotary table with 30 tons load, 5 RPM and a 1500mm V axis travel. Fully CNC 2 axes universal milling head with 34 & 42KW HSK-A100 12000RPM spindle.**





**3. 60 stations ATC, possibly change tools either vertical or horizontal or both.**

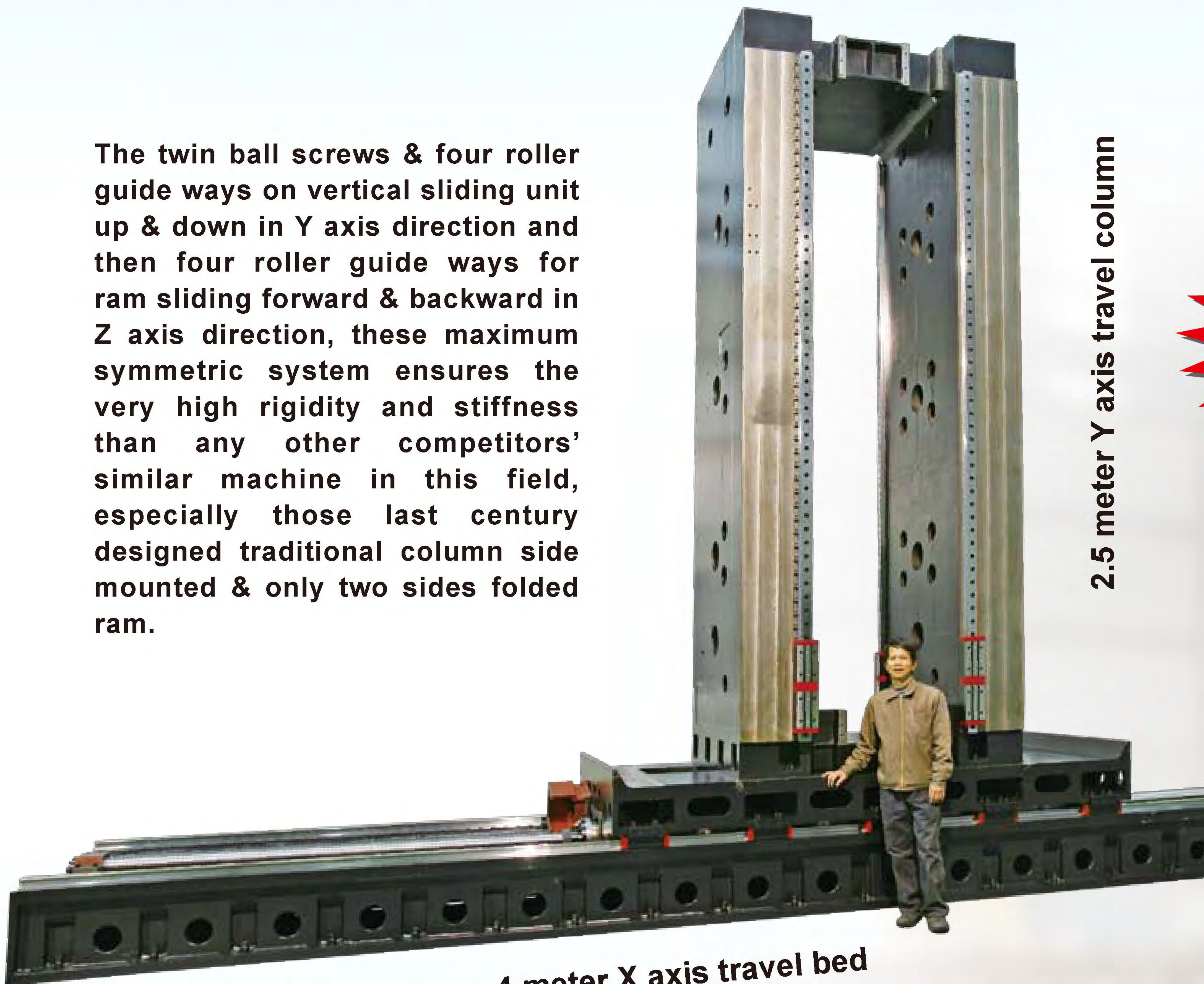


**4. operator and serviceman walking into machine directly from the back side of machine with easy access**



# FBM-4025

The twin ball screws & four roller guide ways on vertical sliding unit up & down in Y axis direction and then four roller guide ways for ram sliding forward & backward in Z axis direction, these maximum symmetric system ensures the very high rigidity and stiffness than any other competitors' similar machine in this field, especially those last century designed traditional column side mounted & only two sides folded ram.



2.5 meter Y axis travel column

4 meter X axis travel bed

- FBM-4025 with 4 meter travel in longitudinal X axis, transmission by a rotating nut  $\phi 80\text{mm}$  high precision ball screw.





***Rigid frame***

**Maximum  
symmetric  
triple boxes**

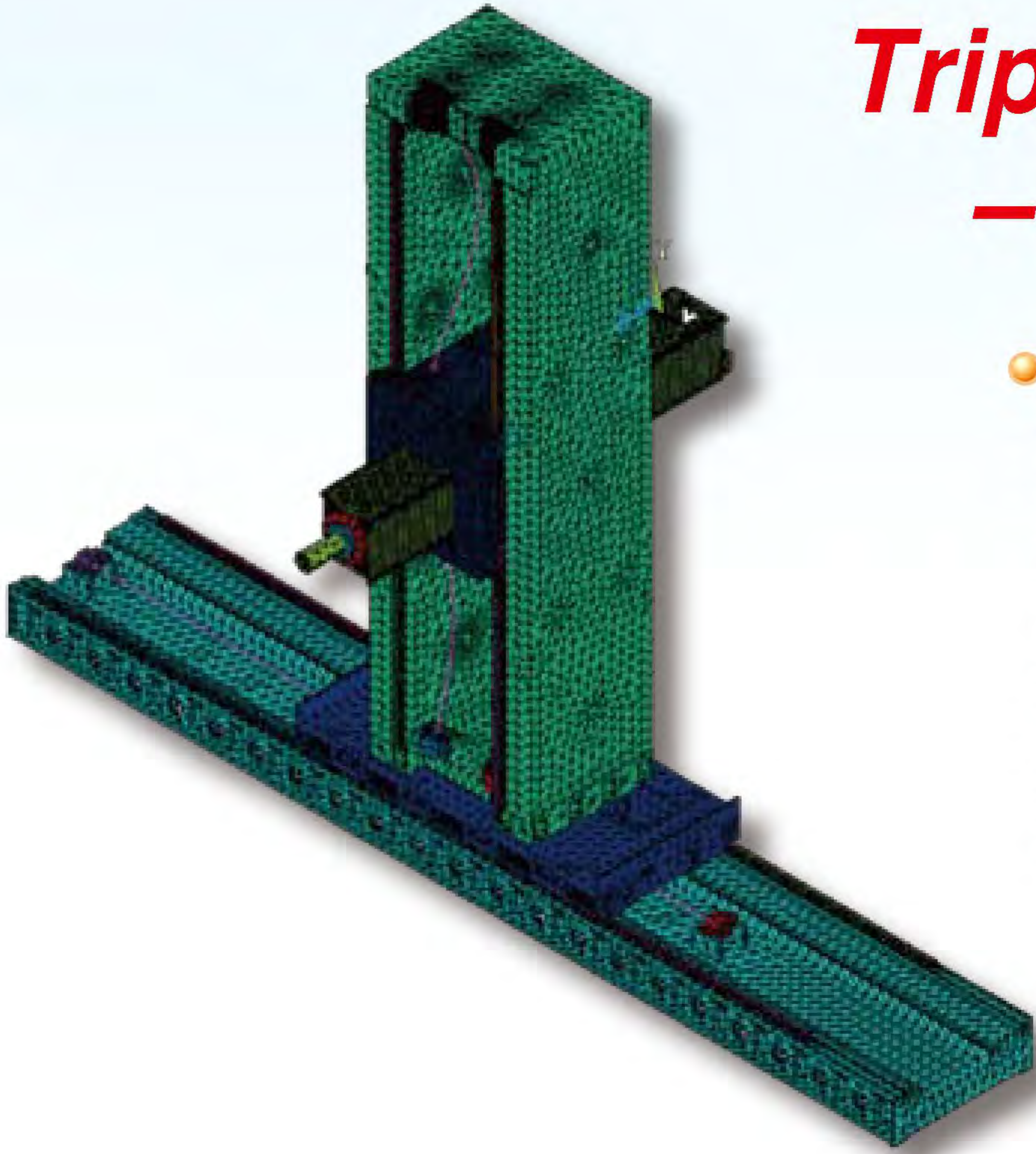
**4 meter Y axis travel column**

**10 meter X axis travel bed**

***FBM-10040***



# Triple boxes designed – Box in Box in Box

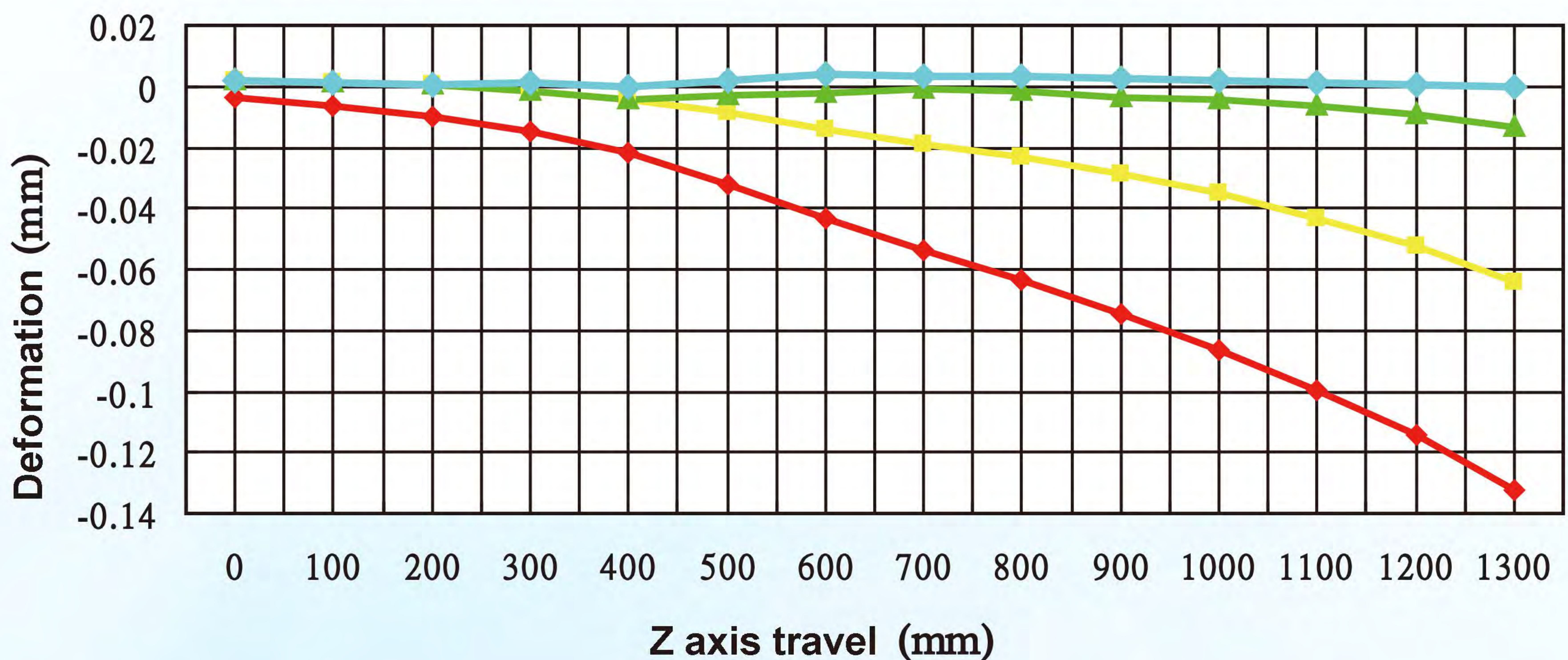
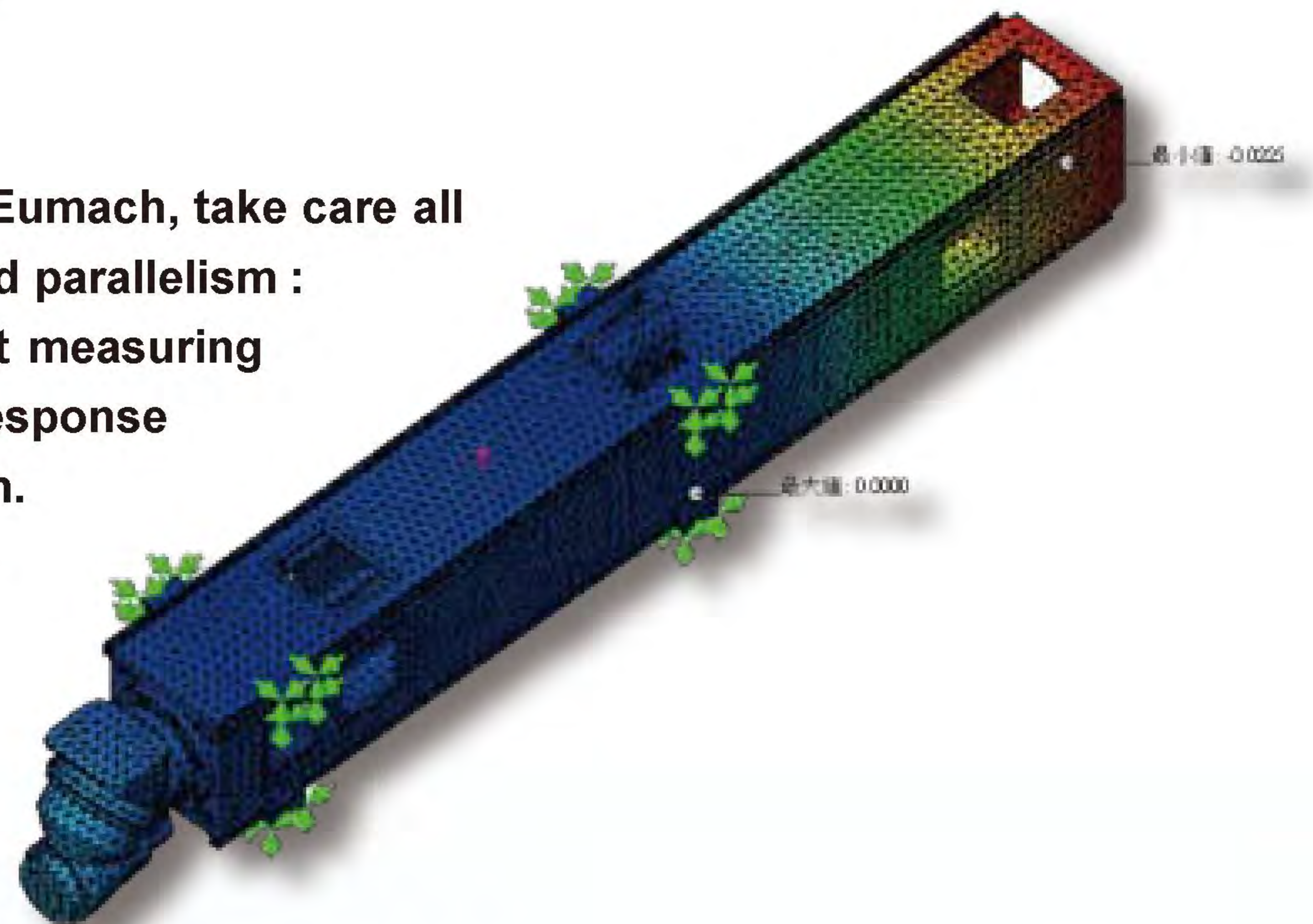


- Triple boxes designed – Box in Box in Box, in addition, machine has been well FEA by using scientific development & technological research computer aided calculation of finite elements, machine has been well simulated & analysis with high accurate data, the stiffness, behavior and answers of the finished machine subjected to the highest stress and strains during the various machining phases.

## ● Ram balance system :

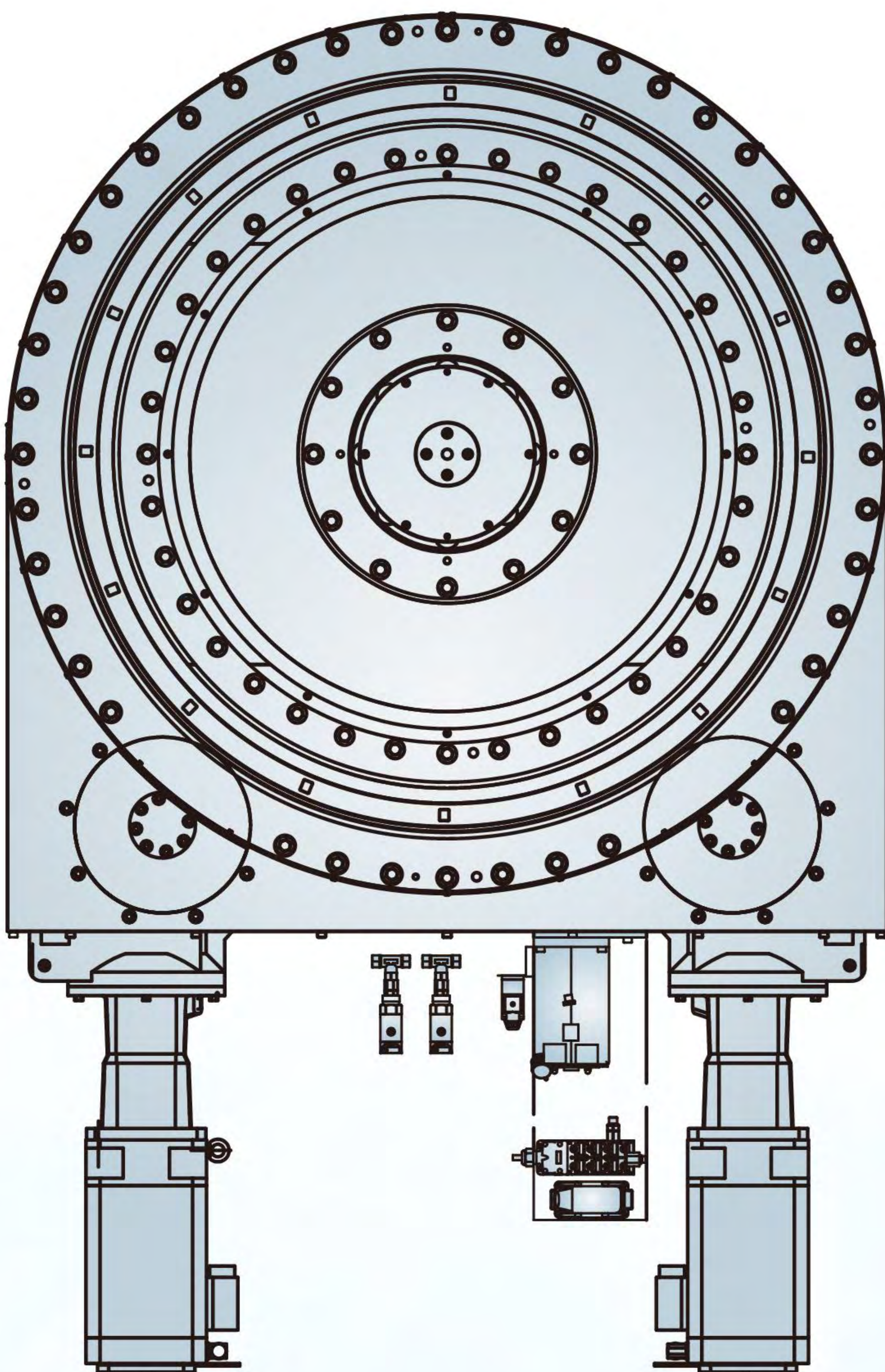
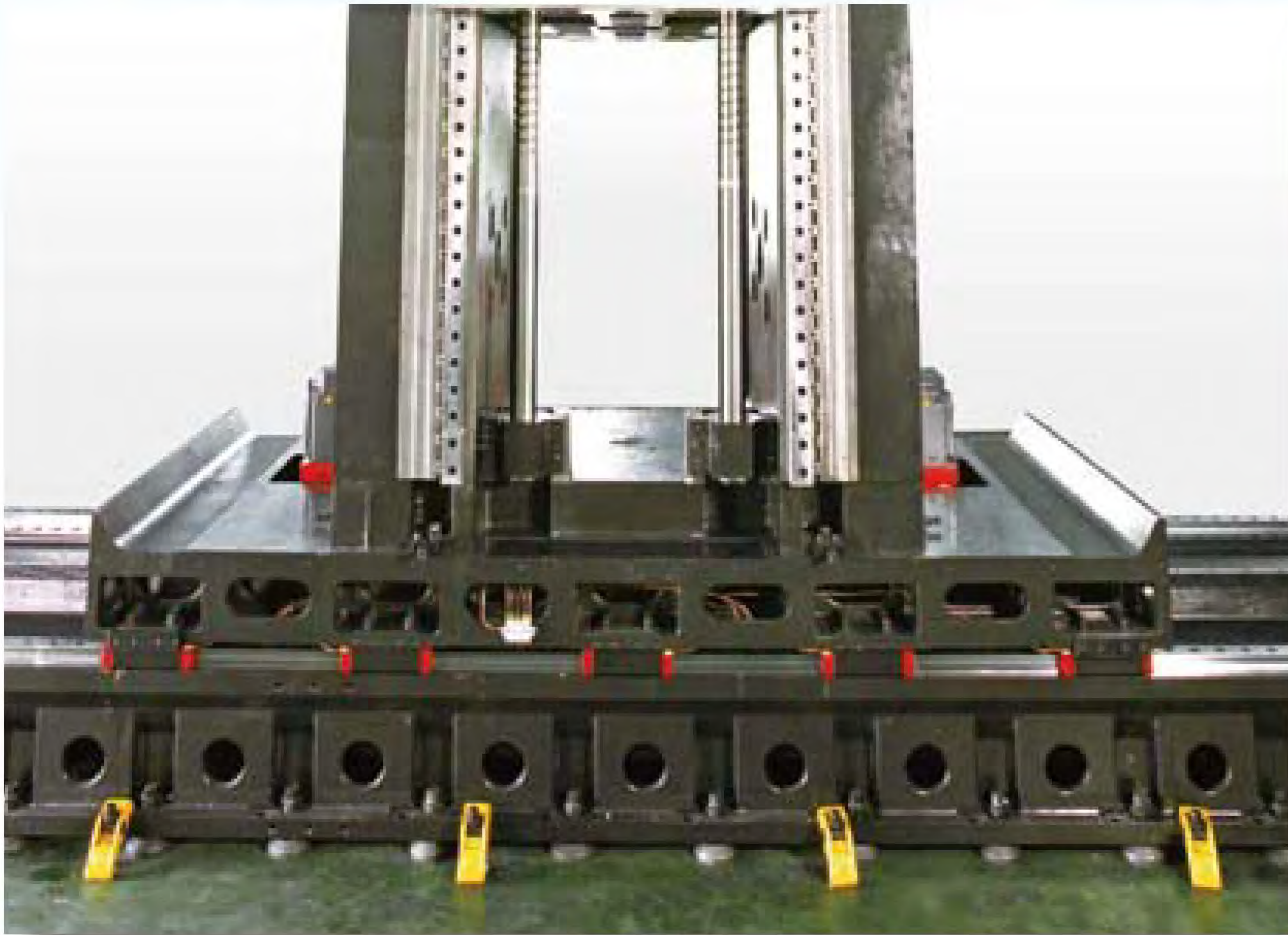
The dynamic ram balance system, patented by Eumach, take care all the ram's geometrical accuracy, straightness and parallelism :

- CNC control – by using servo motor and direct measuring linear scale, which check ram's actual system response and make compensation of natural dropping ram.
- Balance system – this works in both positive & negative directions, it means that optimum compensation can be achieved for a wide variety of different head weights.





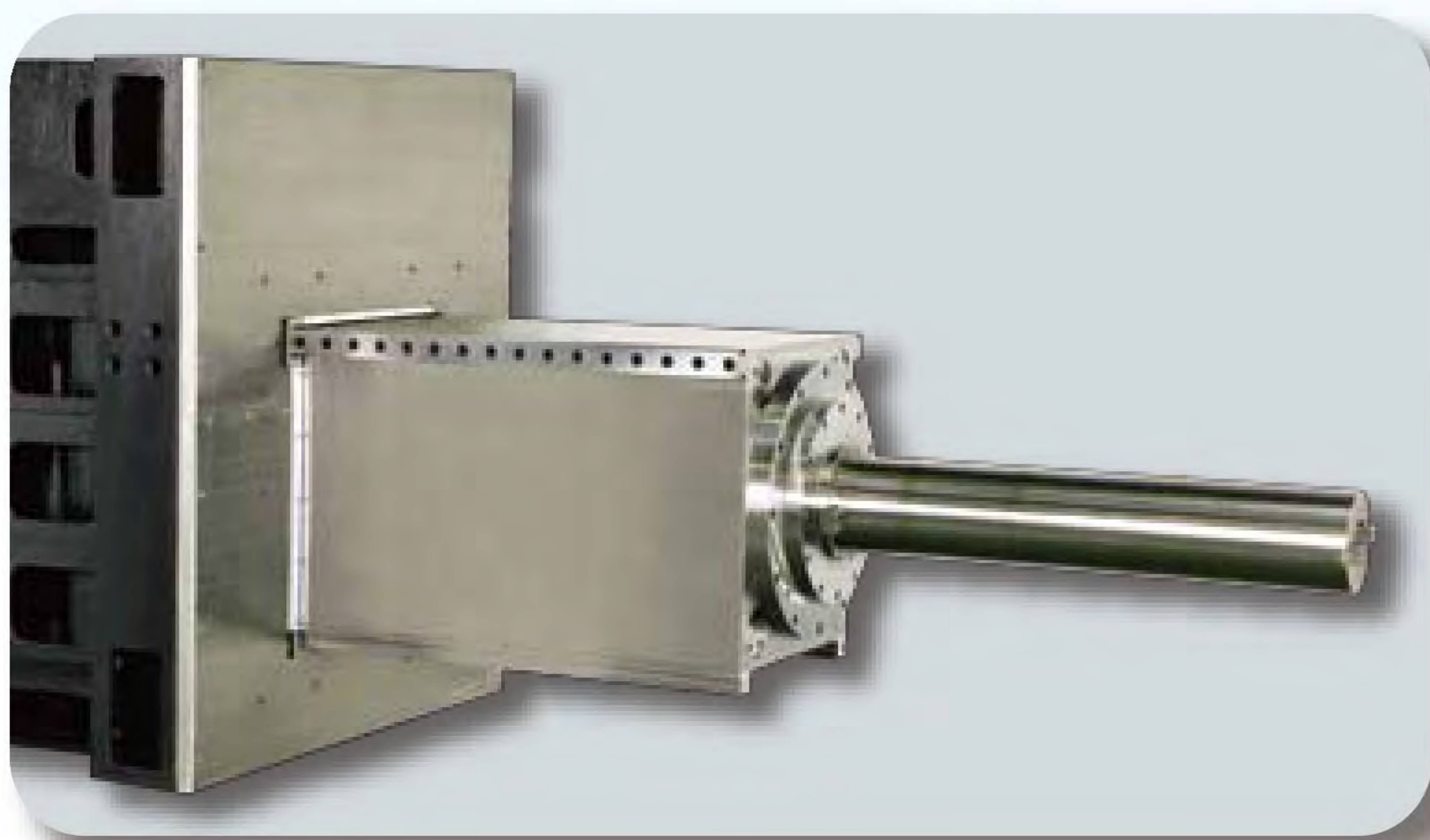
## ***Dual servo motors on X, Y and B axis :***



- X axis starts from 6 meter travel, all the Y axis travel and B axis rotary tables starts from 20 tons load machines are driven by two servo motors, two gearboxes and a double rack & pinion for X & B axis and two ball screws for Y axis. Such dual drives system with master slave control concept and nearly zero backlash advanced management allows a remarkable improvement of the stiffness and accuracy performance.



## Various milling heads available :



### Standard W axis boring spindle :

diameter	φ160mm
travel	700mm
speed	3000 RPM
power	37&45KW ( Fanucα40 ) or 37&51KW ( Siemens1PH7167-2NF )
torque	See page 11

## Optional milling heads :



EXT



EXT90



HF50



VAR3



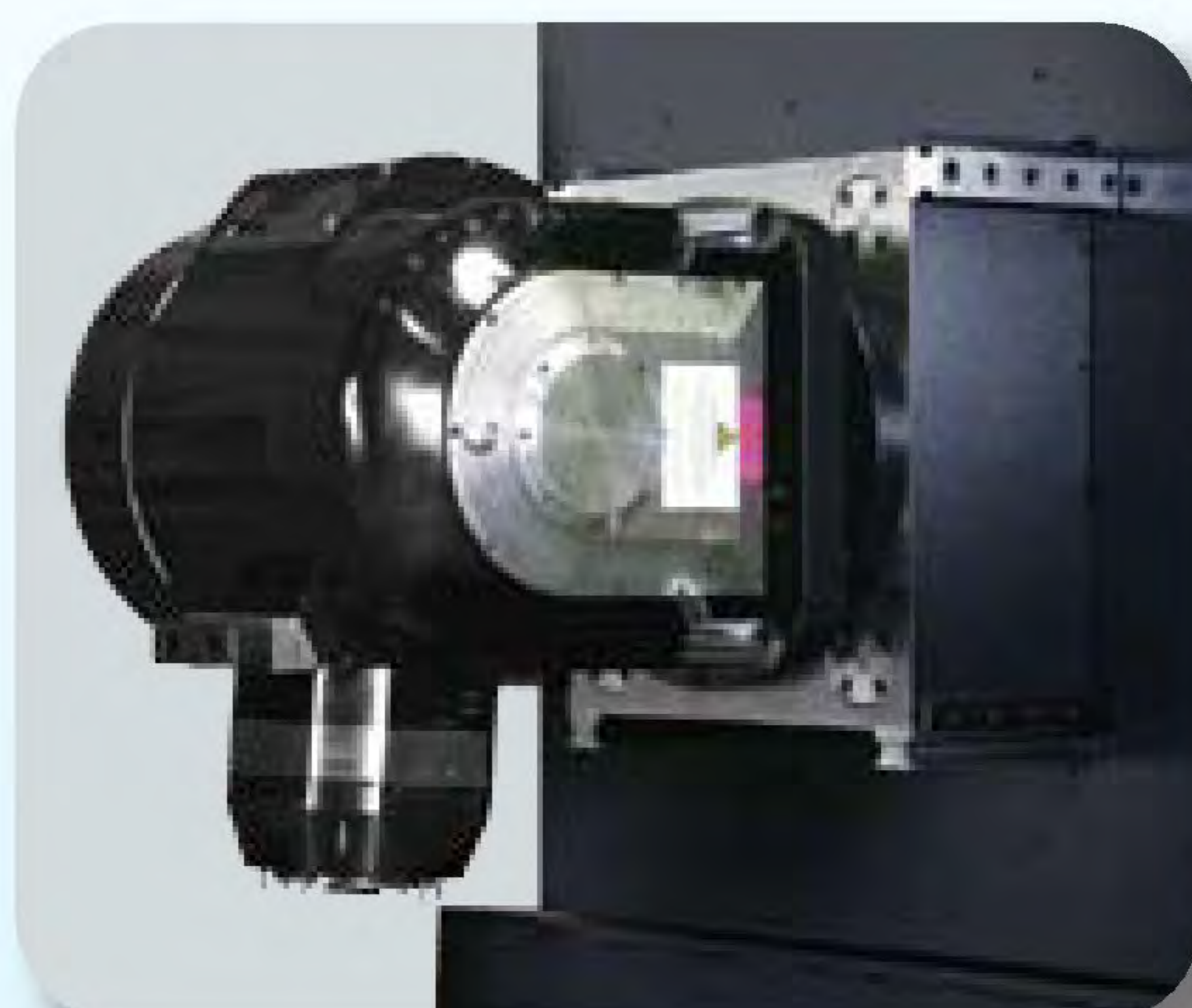
VH2.5



ORT



M21U



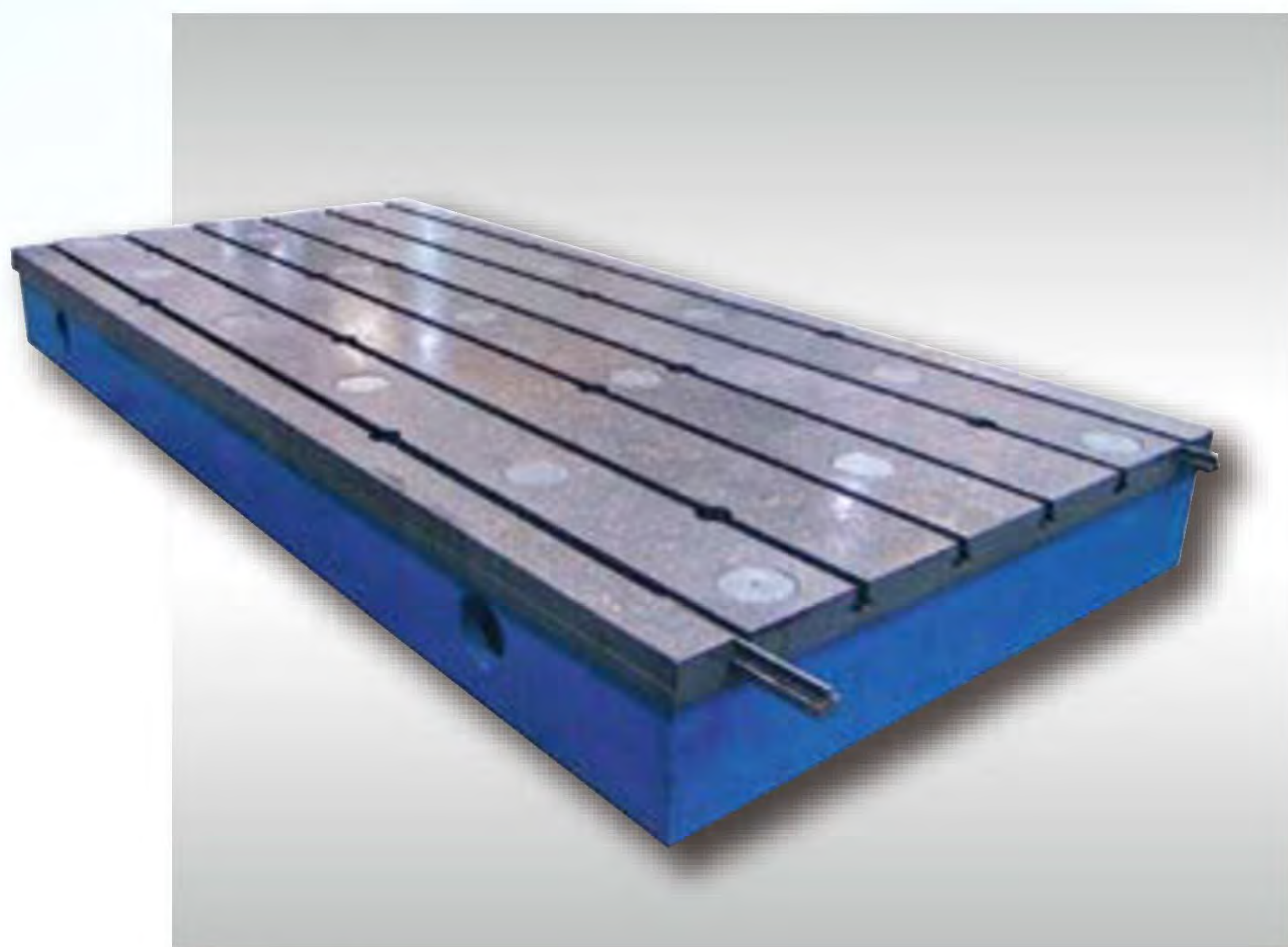
M21F



M21F with automatic head change



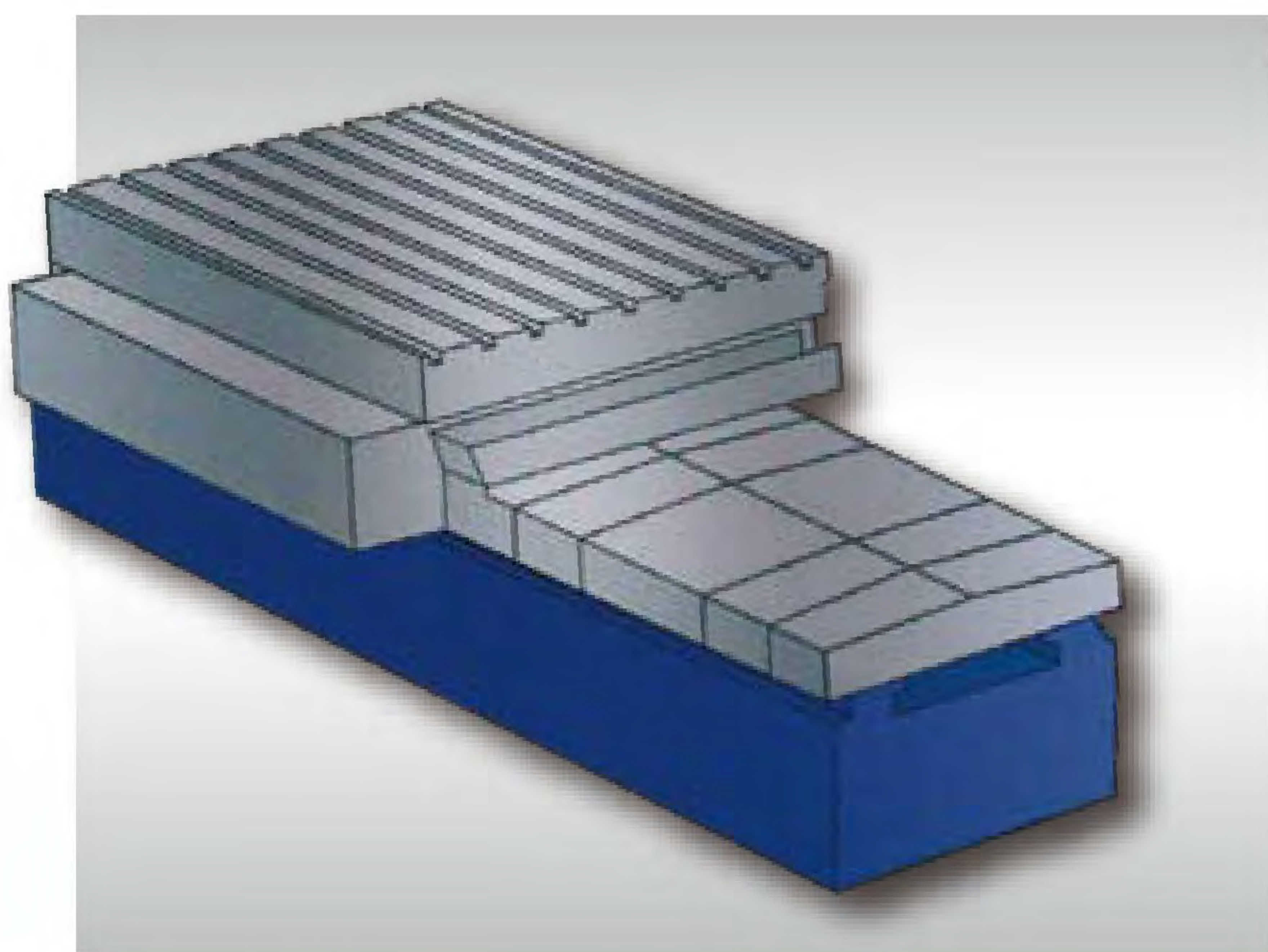
# ***Various optional tables available :***



Floor plate



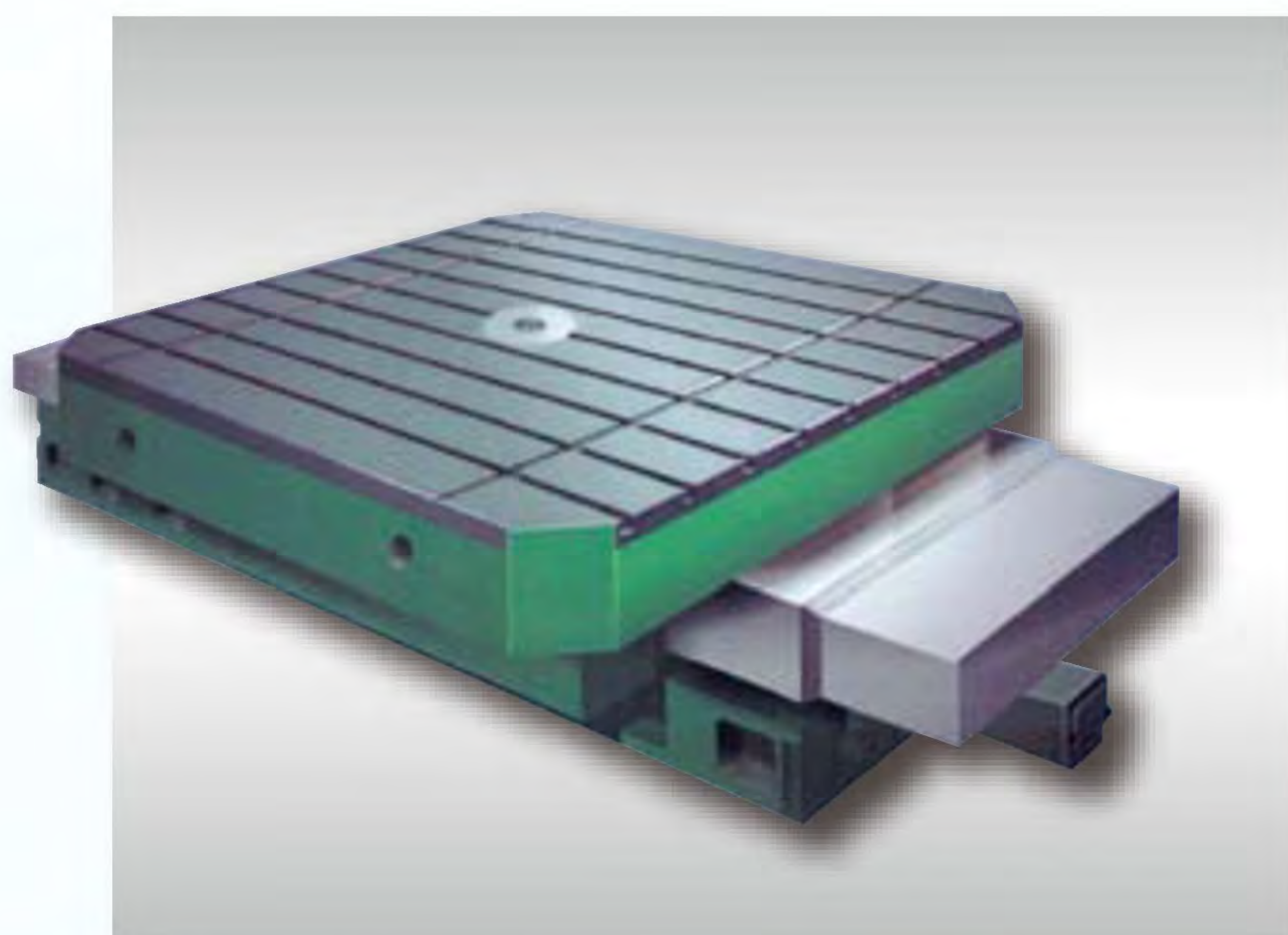
Angle plate



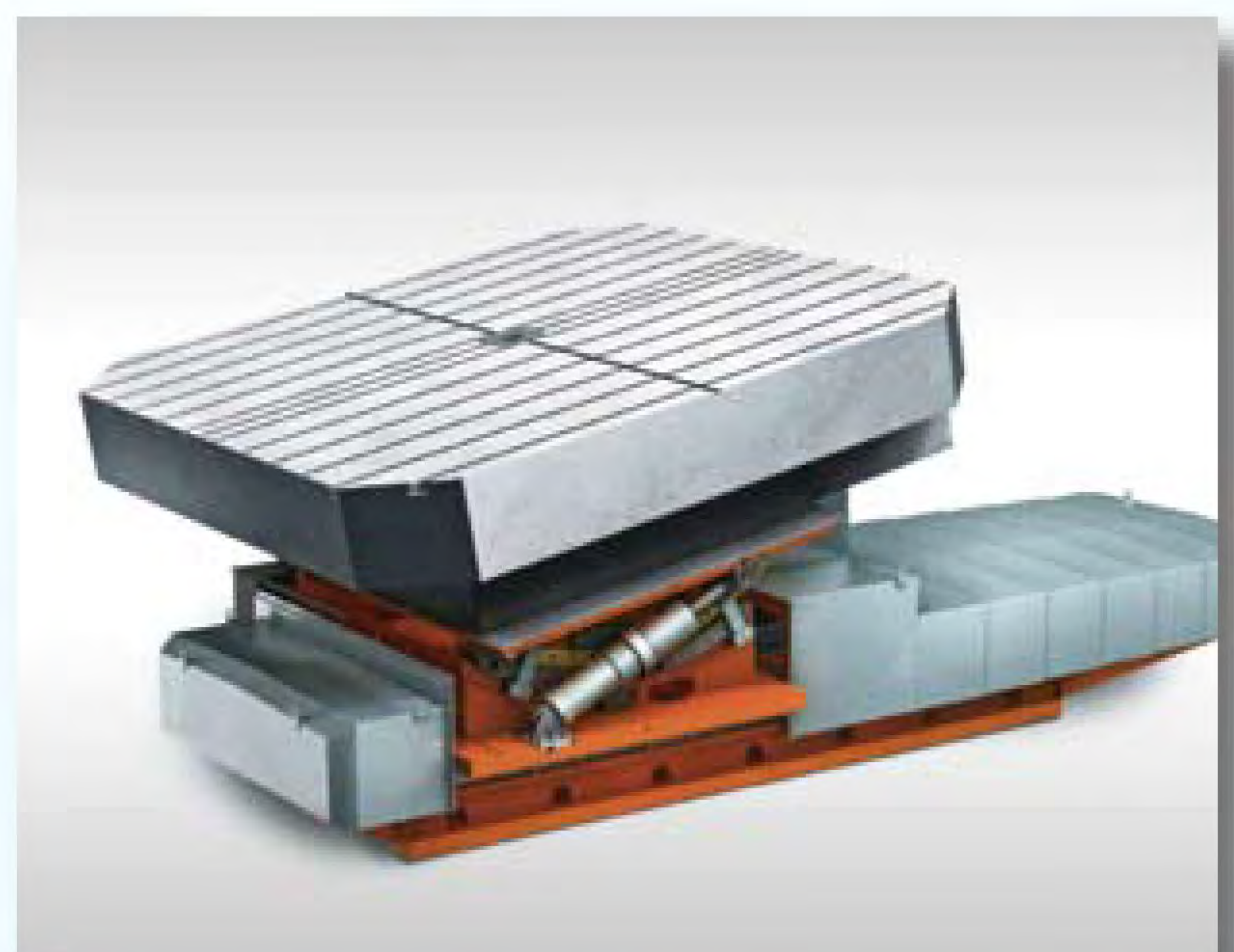
Sliding table



Rotary table



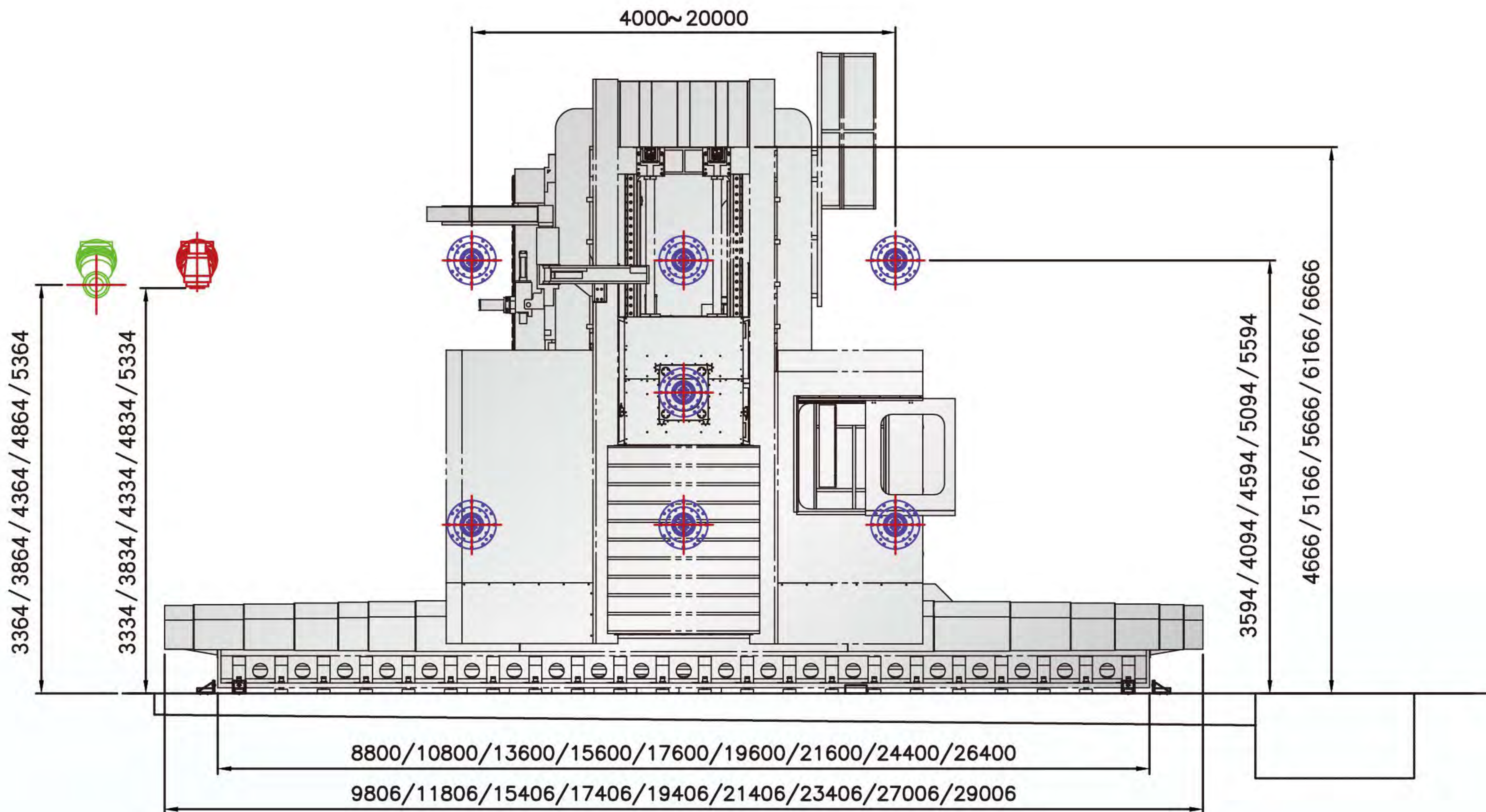
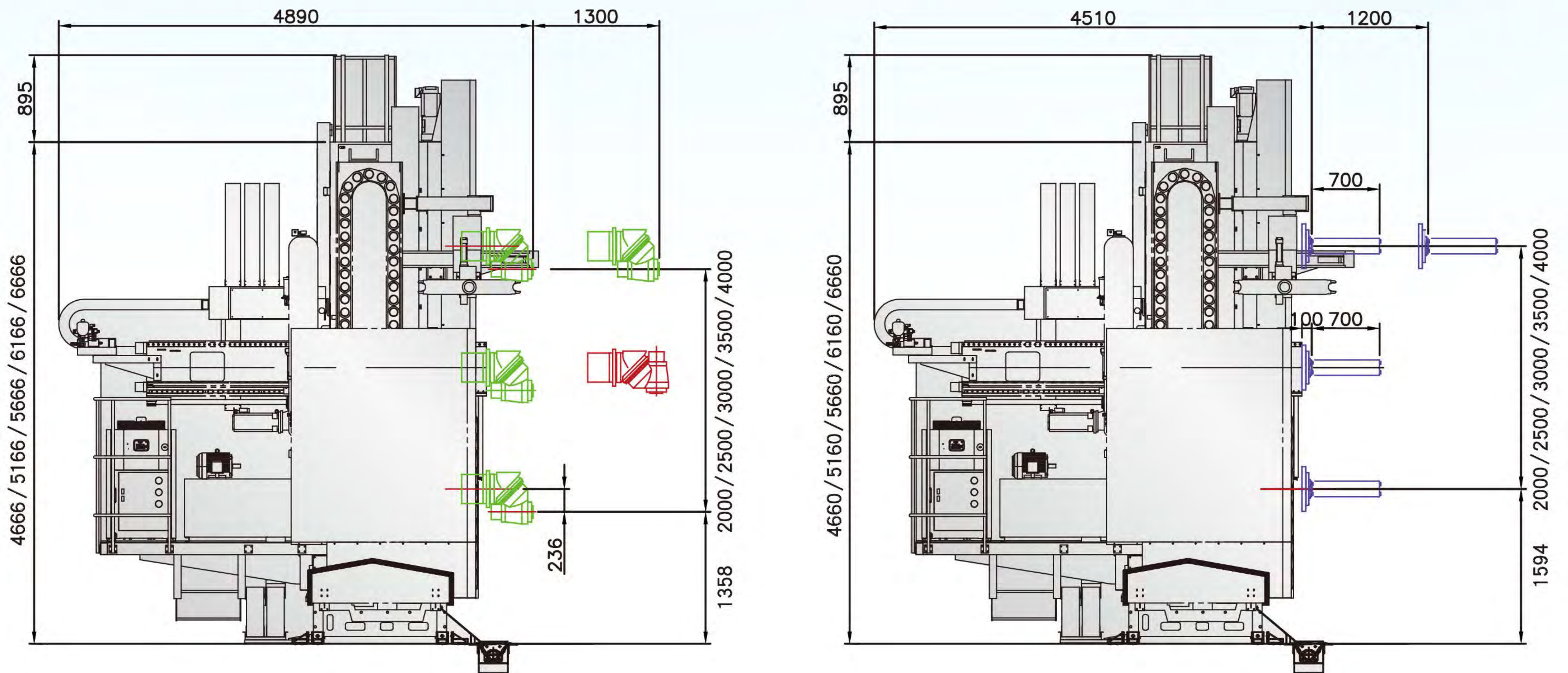
Rotary & sliding table



Rotary & sliding & tilting table

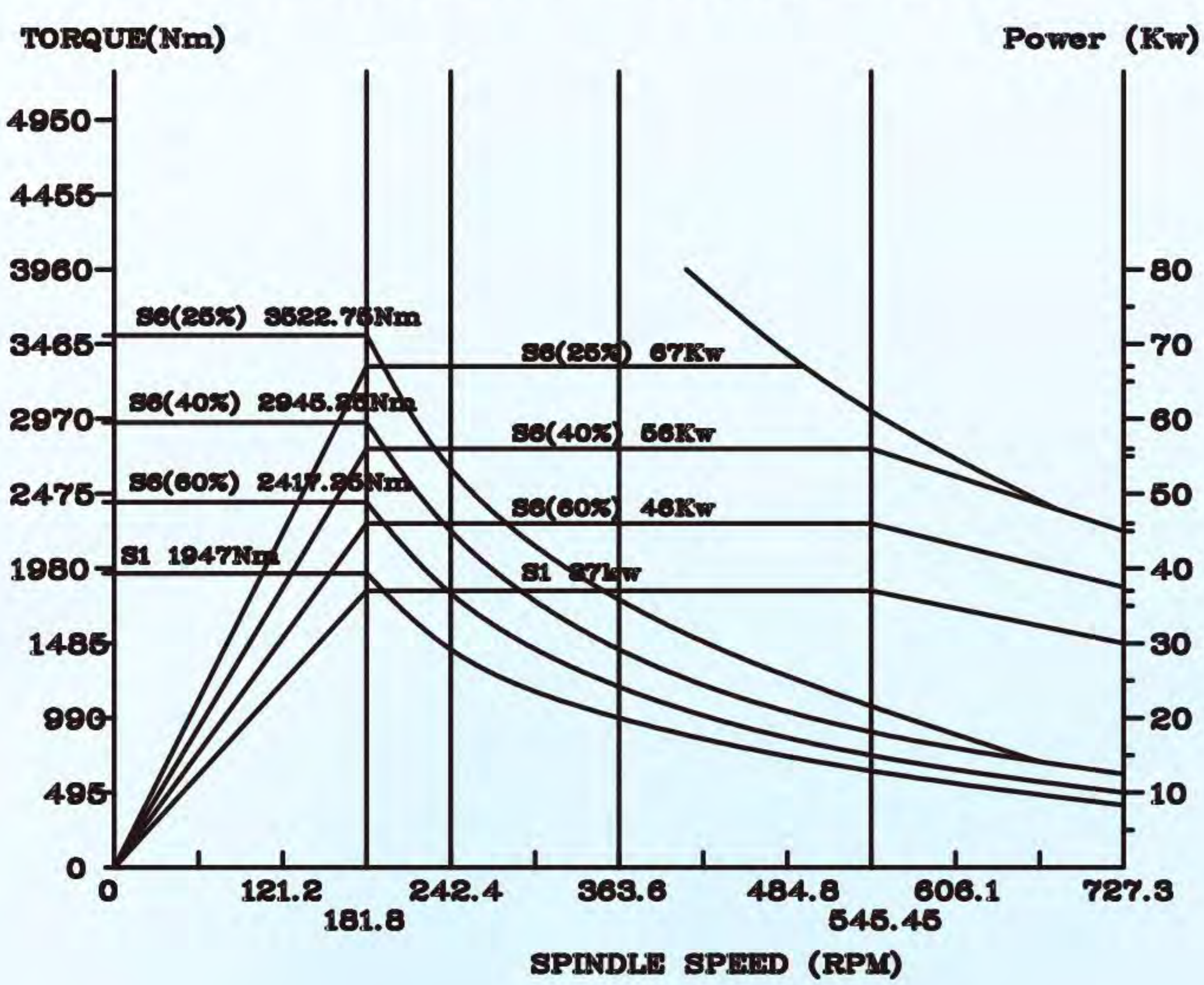


# Dimensions:

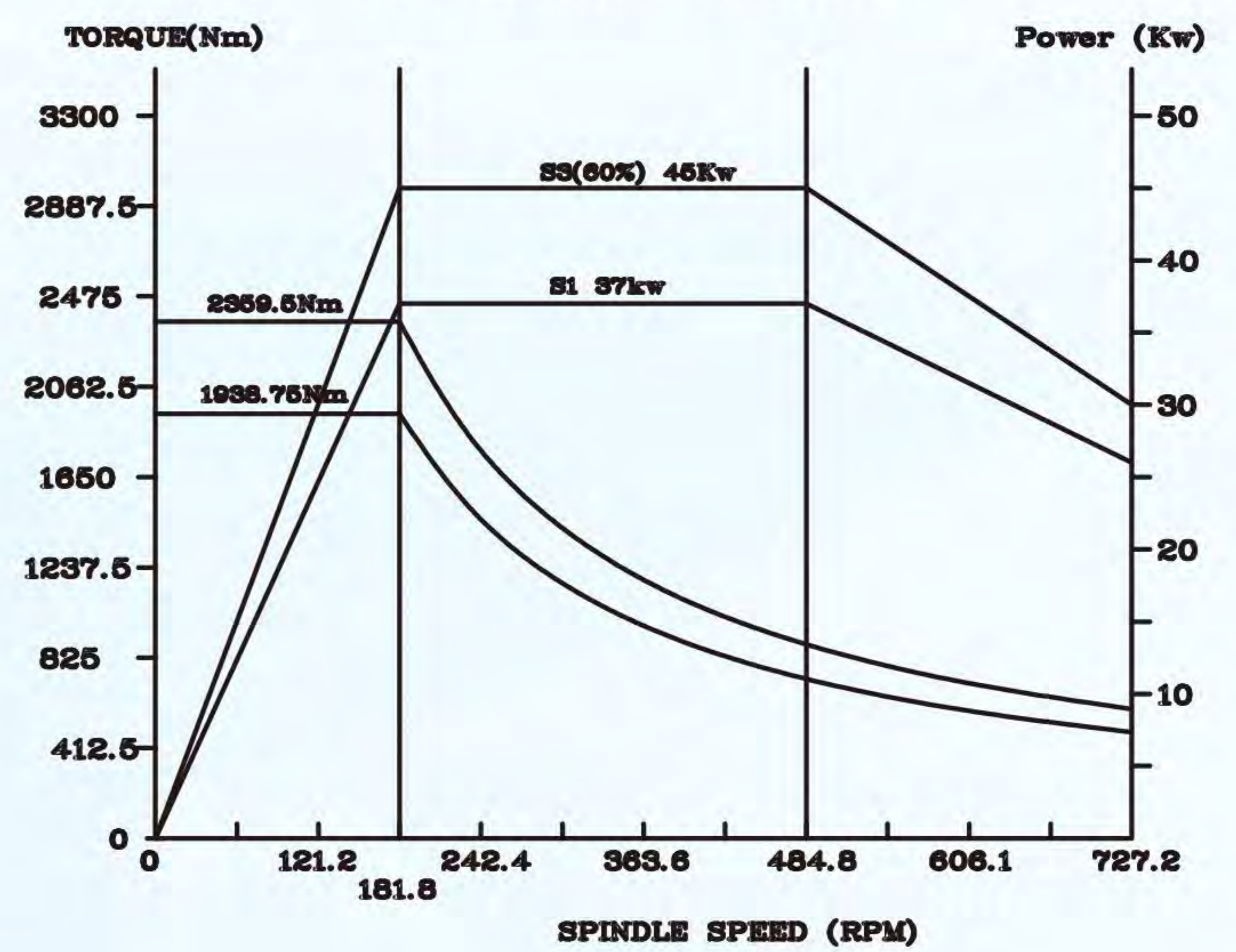


# Spindle power & torque:

With Heidenhain or Siemens Control



With Fanuc Control





# Specifications :

Floor type boring milling centers :		FBM-4020 ~FBM-20040	
Axis Travel	X – column right & left	4M,6M,8M,10M,12M,14M,16M,18M,20M	
	Y – spindle head up & down	2M, 2.5M, 3M, 3.5M, 4M	
	Z – ram forward & backward	1.2M	
	W- quill forward & backward	0.7M	
Guide ways Dimension	X – column right & left	2 x 65mm rails, total 10 runner blocks	
	Y – spindle head up & down	2x65mm+2x45mm rails, total 8 runner blocks	
	Z – ram forward & backward	4 x 45mm rails, total 8 runner blocks	
	W- quill forward & backward	2 x 20mm rails, total 4 runner blocks	
Axis Transmission	X axis	Ball screw	$\phi$ 100mm rotating nut up to 6M travel
		Rack pinion	Starting from 8M travel, with twin drives
	Y axis	Ball screw	$\phi$ 70mm x 2 pieces
	Z axis	Ball screw	$\phi$ 50mm x 1 piece
Feed rate	Rapid X / Y / Z / W axis	20M / 20M / 10M / 5M per minute	
	Cutting X / Y / Z / W feed	10M / 10M / 8M / 5M per minute	
	Minimum setting	0.001MM	
Castings Dimension L / W / H	X axis machine bed	X axis travel + 5300mm / 1373mm / 420mm	
	Y axis machine column	1200mm / 1710mm / Y axis travel + 3355mm	
	Z axis sliding ram	3500mm / 460mm / 520mm	
Boring Spindle ( W axis )	Diameter	160mm dia.	
	Taper & speed	BT#50 & 3000 RPM	
	Power	37 & 45KW (Fanuc) / 37 & 51KW (Siemens)	
	Torque ( 2 gearboxes )	3300 Nm maximum at 180RPM	
Automatic tool changer (optional)	Tools number	40, 60, 90, 120 stations	
	Max. tool dia. / length / weight	$\phi$ 150 mm / 300mm / 25kg	
	Location	fixed on traveling column	
CNC	Brands	Fanuc, Heidenhain, Siemens	

## CNC CONTROLS AVAILABLE



**FANUC**  
31i - MB



**SIEMENS**  
840D



**HEIDENHAIN**  
iTNC-530





# EUMACH FAMILIES



• **VMC-2150**  
Vertical machine center  
400MM ~ 3200MM X axis travel



• **HSM-5X**  
5 Axis machine center  
1020MM x 610MM x 810MM travel



• **LBM-1500**  
High speed bridge type machine center  
1100MM ~ 2200MM X axis travel



• **MH-500**  
Horizontal machine center  
720MM x 650MM x 650MM travel



• **EBM-2150**  
5 Face machine center  
1400MM ~ 3200MM X axis travel



• **MB-1500**  
Moving column horizontal machine center  
1100MM ~ 2200MM X axis travel



• **FBM-10040**  
Floor type milling center  
4M~20M X axis travel



• **FBE-1500**  
Universal milling machine  
1500MM ~ 4000MM X axis travel



• **UMC-1000**  
5 Axis machine center  
1000MM x 800MM x 700MM travel

**Eumach Co.,LTD.**

★ Specifications subject to change without notice.  
Catalogue No. A2030101

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